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Reference 59666	Application No./Patent No. 08013270.7 - 1227 / 1990851
Applicant/Proprietor Sony Corporation	

Communication

The extended European search report is enclosed.

The extended European search report includes, pursuant to Rule 62 EPC, the European search report (R. 61 EPC) or the partial European search report/ declaration of no search (R. 63 EPC) and the European search opinion.

Copies of documents cited in the European search report are attached.

☒ 2 additional set(s) of copies of such documents is (are) enclosed as well.

The following have been approved:

☐ Abstract

☒ Title

☒ The Abstract was modified and the definitive text is attached to this communication.

The following figure(s) will be published together with the abstract: 1

Refund of the search fee

If applicable under Article 9 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.



EUROPEAN SEARCH REPORT

Application Number

EP 08 01 3270

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 0 917 228 A (MATSUSHITA ELECTRIC IND CO LTD [JP]; MITSUBISHI CHEM CORP [JP]) 19 May 1999 (1999-05-19) * figure 2 * * paragraphs [0012], [1314], [0015], [0018], [0019], [0023], [0026], [0027], [0032] *	1-16	INV. H01M4/58
A	EP 0 916 618 A (OSAKA GAS CO LTD [JP]) 19 May 1999 (1999-05-19) * paragraphs [0006], [0008], [0014], [0017] - [0019], [0031], [0032] * * claims 2,4,5,7,8 *	1-16	
A	EP 0 660 432 A (ACCUMULATEURS FIXES [FR] CIT ALCATEL [FR]) 28 June 1995 (1995-06-28) * example 3 *	1-16	
			TECHNICAL FIELDS SEARCHED (IPC)
			C10C H01M C04B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		7 October 2008	Kuhn, Tanja
CATEGORY OF CITED DOCUMENTS			
X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document		T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 01 3270

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-10-2008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0917228	A	19-05-1999	CN 1227004 A	25-08-1999
			ID 21480 A	17-06-1999
			WO 9854779 A1	03-12-1998
			KR 20000029650 A	25-05-2000
			US 6403259 B1	11-06-2002
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			CN 1226224 A	18-08-1999
			DE 69710073 D1	14-03-2002
			DE 69710073 T2	18-07-2002
			WO 9804497 A1	05-02-1998
			JP 3873325 B2	24-01-2007
			JP 10036108 A	10-02-1998
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			CA 2138753 A1	23-06-1995
			DE 69420374 D1	07-10-1999
			DE 69420374 T2	30-03-2000
			WO 9517770 A1	29-06-1995
			JP 8507408 T	06-08-1996
			US 5554462 A	10-09-1996



ABSTRACT / ZUSAMMENFASSUNG / ABRÉGÉ

08013270.7

A non-aqueous electrolyte secondary battery with a high capacity in which irreversible capacity is decreased, and formation of a coating caused by irreversible reaction, and a method of preparing a preferable carbon-based material for the negative electrode. The graphite material can be obtained by mixing a carbon-based material with a coating material such as pitch or by applying a heat treatment to a carbon-based material in an oxidizing atmosphere and then performing graphitization.

The examination is being carried out on the **following application documents**:

Description, Pages: 1-54 as originally filed

Claims, : 1-16 as originally filed

Drawings, Sheets: 1/4-4/4 as originally filed

1. Reference is made to the following document; the numbering will be adhered to in the rest of the procedure:

D1: EP-A-0 917 228 (MATSUSHITA ELECTRIC IND CO LTD [JP]; MITSUBISHI CHEM CORP [JP]) 19 May 1999 (1999-05-19)

2. This application is a divisional application of application EP 01106598 and claims invention 2 of the parent application. The applicant still has to restrict the description to invention 2 and excise those parts of the application relating to the other invention (Art. 82 and 84 EPC).

3. Essential features missing and inconsistencies (Art. 84 EPC)

It is clear from the examples of the claimed invention (examples 1 to 6 and 8 to 31) that the chemical formula/composition of the organic substance and treatment of the graphite powder of the invention with certain organic substances is an essential feature for the solution of the problem to which the invention relates (see also Guidelines for Examination of December 2007 Part CIII-4.3(I) and also comparative example 2)

Since independent claim 1 does not contain these feature it does not meet the requirement following from Article 84 EPC, taken in combination with Rule 43(1) and (3) EPC, that any independent claim must contain all the technical features essential to the definition of the invention.

It is further noted that Example 7 of the application does not have the desired technical effect of the invention (see table 1: ex. 7 has the same cycle retention rate of the comparative example). In view of this, it becomes evident, that the half an hour of circulation of the volatilized xylene and butene mixture in argon gas is not sufficient to achieve the technical effect according to the invention. Example 7 should therefore be indicated as a comparative example

As a certain minimum circulation time of the organic substances is an essential feature of the invention, this technical feature also has to be present in independent claim 1.

4. Clarity (Art. 84 EPC)

4.1 The application does not meet the requirements of Article 84 EPC, because independent claim 1 is unclear.

The terms "... mixing a coating material made of one of pitch containing free carbon, pitch with a quinoline insoluble matter content of 2 % and more, or polymer (inconsistency with the examples 1 to 6 and 8 to 31 of the invention), with a carbon-based material made of at least either one of mesocarbon microbeads grown at a temperature within the range of the formation temperature to 2000 °C, both inclusive, and a carbon material; and graphitizing the carbon-based material with which the coating material is mixed, wherein the step of mixing the coating material with the carbon-based material includes a step of applying a heat treatment to graphite particles in an inert atmosphere where more than a specific concentration of an organic substance is diffused", are vague and unclear and leave the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the definition of the subject-matter of said claims unclear (Article 84 EPC).

The term "the method is used in a manufacturing process...", used in claim 2 is ambiguous with regard to the claim category and therefore unclear.

It is further noted that the Search Division is of the opinion, that not all possible organic substances compounds encompassed by the vague term of independent claim 1 "an organic substance" show the technical effect of the invention.

5. Novelty (Art. 52(1) and 54 (1) EPC)

Furthermore, notwithstanding the above-mentioned lack of clarity, the subject-matter of claim 1, is not new within the meaning of Article 54(1) and (2) EPC, and therefore the requirements of Article 52(1) EPC are not met.

The document D1 discloses the subject matter of claim 1 (the references in parentheses applying to this document):

A method of preparing a carbon-based material for a negative electrode (paragraph 14) including steps of:

- preparing graphite powder from natural graphite (paragraph 15)
- applying a heat treatment to the graphite particles in an inert atmosphere where one or more of an organic substance (aromatic hydrocarbon such as anthracene, thiophene etc. see paragraph 18) is diffused (paragraphs 14 and 23); the temperature of the heat treatment being preferably 2000 °C or less, see paragraph 26)
- and
- mixing a polymer binder with the carbon based material (page 6, lines 7 to 11).

D1 also discloses the subject matter of dependent claims 2 (paragraph 14, Fig. 2), claims 3 to 7 (paragraph 18), claim 8 (paragraph 15), claim 10 (general knowledge), claim 11 (tapping density of 1,0 g/cm³; paragraph 12 (5)), claims 12 and 13 (see the cited passages above), claim 14 (general knowledge), claims 15 (see the above cited passages), claims 16 and 17 (Fig 2).

6. Inventive Step (Art. 56 EPC)

The subject matter of dependent claim 9 is not explicitly disclosed in D1, but it appears just to be a normal design option to include this feature in the method described in document D1. The Search Division could not find the technical effect of that technical feature in the application as a whole. Claim 9 therefore lacks an inventive step.

Final remarks

It is not at present apparent which part of the application could serve as a basis for a new, allowable claim.

Should the applicant nevertheless regard some particular matter as patentable, an independent claim should be filed taking account of Rule 43(1) EPC.

The applicant should in the latter case file a clear and concise independent claim comprising the method steps in the correct order and also clarify what is - based on the application as originally filed - the technical effect of the difference of the application over the prior art, which is derivable from the application as filed and supports an inventive step.

Further the applicant should take care to add subject matter that goes beyond the disclosure of the application as originally filed (Art. 123 EPC).